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determination of material, but this is the fault of individuals and not of the system. Also it is true that subspecific designation is only a part of ornithology, and not its end, but it is a very important part, and although current usages are far from perfect, we should be very careful not even partially to adopt others that would prove less so.

While I am writing this, I wish strongly to protest, though probably in vain, against the indoor sport taken up by many quasi-ornithologists of condemning, without any consideration whatever, every new subspecies which is described. If, after careful comparison of typical material, one who is reasonably familiar with his bird decides that the form in question is untenable, I have nothing to say, for I "live in a glass house" and there are many forms which I think unwarranted. However, the style now seems to be for many who know little about birds, to throw up their hands in horror at every new thing described, without ever having seen a skin of that form. Even if material has been examined and no differences noted, the amateur or semi-amateur must remember that, in the first place, his skins may be intergrades, and in the second, that he may be unable to recognize differences which to a trained specialist may be perfectly apparent. And so, even if there appear to be entirely adequate grounds for objections, one should be careful to keep from joining in any of Osgood's classical "dribbling protests."—A. B. HOWELL, *Covina, California, December 26, 1918.*

PUBLICATIONS REVIEWED

THE GAME BIRDS OF CALIFORNIA | Contribution from the University of California | Museum of Vertebrate Zoology | By | JOSEPH GRINNELL | HAROLD CHILD BRYANT | and | TRACY IRWIN STORER | University of California Press | Berkeley | 1918. Large 8vo, pp. x+642, 16 colored pls., 94 figs. in text, 1 table inserted; issued December 28, 1918. Cloth, \$6.00, net.

The need of a work such as this has been too real to require further comment after the deficiency has been so adequately met. The Game Birds of California will win immediate approval. From the dark blue, gold-lettered cover and excellent colored plates to the dull surfaced paper and beautiful typography it is consistently an admirable book. And if this praise of externals seems unduly to extoll a less important feature, let the reviewer confess himself a lover of at-

tractive books and remind the reader that in good society, science well-dressed is not without appreciation, and even praise.

To one who knows all three authors, they seem a very happy combination of craftsmen. Certainly the finished product has justified Doctor Grinnell's prefatory statement—"namely that the highest plane of scientific output can be accomplished only through coöperative effort. . . . Where one author working alone would make mistakes unawares, two, or better, three, are able to check one another's output to advantage. The best results, always granting mutually sympathetic interest, will follow organized coöperative toil."

We learn from the introduction that "In preparing the present volume the authors have attempted to meet the requirements of a varied public. The hunter wishes information concerning the haunts and the habits of our game birds; the naturalist wishes to have the completest possible data regarding their life histories; the legislator who appreciates the necessity of judicious game laws wishes to have the facts that are relevant to his purpose presented in concise form; and the conservationist desires that information which will assist him in his efforts to perpetuate our bird life for the ultimate benefit of the greatest number of people. Whether the needs of these various classes have been adequately met in the following pages remains to be proved, but it may at least be stated here that none of them has been overlooked. To each of the four categories of persons above mentioned, this book is offered as a working manual." It seems to the reviewer that the authors have lived up to the task which they set for themselves.

One of the underlying incentives for the publication of *The Game Birds of California* was found in the decrease of many species of game birds and the seeming indifference of the public toward instituting rational measures to conserve them. The book adequately treats of the means to be taken to conserve game and makes practical recommendations suited to each species.

Introductory chapters are devoted to general subjects, as follows: Decrease of Game and its Causes; Natural Enemies of Game Birds; The Gun Club in California; History of Attempts to Introduce Non-native Game Birds; The Propagation of Game Birds; Legislation Relating to Game Birds in California. The sportsman and nature lover will find much of immediate utility in these general chapters.

The technical matter useful to the special student of birds is found condensed in small type at the head of each discussion. This makes reference to the finer characters of each species easy, and at the same time segregates this formal matter from the more readable text following.

The plan of treatment of each bird follows a regular sequence: Technical portion (in small type): Accepted common and scientific names; other names; description: adult male, adult female, juvenile, downy young; marks for field identification; voice; nest; eggs; general distribution; distribution in California. Text (in large type): General and local distribution; migration; field marks; life history; nest, eggs, young; habits and behavior; food; economic value; present and probable future status.

Every one of the 108 native game birds of the state is described in detail, these including the ducks, geese, swans, ibises, cranes, rails, snipe, sandpipers, curlew, plover, quail, grouse, pigeons and doves. The localities in which each is found, and the times of the year when it is found, are designated and its life history and habits are accurately and well described.

Some of the life histories are unusually full—notably those of the commoner and more popularly known species; and while justice is done to the observations of previous workers, much new material of sterling worth is woven into the entire fabric of the book. Thus it is a substantial contribution to science—to the body of ascertained fact.

All through the book especial attention is given to those distinctive characters of a bird that help to make it recognizable from other species when alive, at a distance. A useful field manual is thereby provided. A dependable key to the various species makes possible the identification of any specimen in hand. The index contains all the common as well as the scientific names, thus making it easy to locate any bird, provided some name is known, even though this name be a very local, popular one.

Unquestionably the sixteen colored plates contribute very materially to the usefulness and attractiveness of the book. Thirteen are by Fuertes and the rest by Allan Brooks—all in the happiest vein of these accomplished artists. Twenty-one different game birds are figured in color, and the portraits are not only aesthetically satisfying, but eminently informative as well—two qualities which are not necessarily associated. The figures depict the birds in their characteristic, or usual, Californian environment—

and let me emphatically state that these are no T-perch effigies, but real live birds, transferred in miniature to the printed page, retaining all the vitality of a "cinematic" likeness. For instance, feel the perceptible "honk" of the geese on plate 6, or the hurry of the rail stepping off on plate 9; or the quiet animation of the quail in plate 1, or the dynamic quality of the mudhens of plate 10. The ninety-four line drawings in the text serve largely to illustrate characters of plumage, bill, or feet, such as are especially helpful in identifying the different kinds of game birds.

Much credit is due to a Berkeley gentleman, whose name is withheld, and to Miss Annie M. Alexander for providing the "sinews of war"; to the former for supplying funds to carry on the economic work and to the latter "for the continued financial support, furnished in generous measure" to the Museum of Vertebrate Zoology, through whose opportunities the game bird book was brought to a conclusion.

Certainly everyone interested in California birds will wish to possess this book. If little has been said directly concerning the text, it has been because the reputation of the authors has seemed to the reviewer to render such special commendation superfluous. From Grinnell, Bryant, and Storer a high grade of work is a matter of course, since they stand high in the Bradstreet of ornithology. Theirs must be the satisfaction of craftsmen who have done something better than it has been done before; and they are to be congratulated for having so worthily represented their institution in the commemorative series of the Semicentennial of the University of California.—W. K. FISHER, *Hopkins Marine Station of Stanford University, Pacific Grove, California, February 8, 1919.*

SOME RECENT INVESTIGATIONS ON THE FOOD OF CERTAIN WILD BIRDS. By Walter E. Collinge, D. Sc. F. L. S. *The Journal of the Board of Agriculture*, vol. xxv, September, 1918, pp. 668-691, 17 diagrams in text.

Under the above title, Dr. Walter E. Collinge, now the foremost economic ornithologist of Great Britain, throws new light on the economic value of nine species of British birds. The three main points made in the introduction are: Need for more knowledge on the food habits of birds, because of their direct relation to agriculture and food supply; the intricacy of the problem; the casual and unscientific manner in which the subject has been treated in the past. The